

STUDIES IN THE TREATMENT OF MALARIA

XIII.—ORAL ADMINISTRATION OF QUININE SULPHATE GRAINS 90 ON TWO CONSECUTIVE DAYS ONLY, IN SIMPLE TERTIAN MALARIA

[SECOND SERIES]

BY

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In a previous paper (1918) we recorded the results of administration of quinine sulphate in solution grains 90 on each of two consecutive days to a series of seventy-six cases of simple tertian malaria. Sixty-two per cent. of the cases treated did not relapse within an observation period of sixty days or longer (in four cases the observation period was only fifty-three, fifty-three, fifty-four and fifty-eight days respectively). In the present paper we record the results of the same treatment in a second series of eighty-nine cases.

A summary of the results is given in Table II, which also contains

the following additional information:—Place of infection, and interval in months between present treatment and (*a*) first admission to a hospital for malaria, (*b*) leaving infected area, (*c*) arrival in England.

In all cases quinine sulphate in solution was given orally either in three doses of grains 30, or six doses of grains 15 on each of two consecutive days.

Blood examinations were made daily in all the cases.

Parasites disappeared from the blood as a rule in one to two days, in all cases within five days. The temperature fell to normal either on the day of the first dose or within one to three days.

Relapses. In eighty-four of eighty-nine cases a parasitic relapse occurred in twelve to fifty-three days, average eighteen days. In three cases there was no parasitic relapse within an observation period of sixty days. Case 761 was discharged on the twenty-seventh day, and Case 811 on the fortieth day. In sixty-four cases true febrile relapses occurred in thirteen to fifty-four days. Two cases (809 and 813) relapsed parasitically on the sixteenth and thirty-ninth days; parasites were not found again and there was no febrile relapse up to the eighty-fifth and seventy-third days respectively.

Tolerance of treatment. A number of cases presented symptoms of quinine poisoning, e.g. deafness, giddiness, vomiting, tremors, dimness of vision. One case (750) became temporarily blind. In all cases unfavourable symptoms disappeared within two to three days.

SUMMARY

In this series of eighty-nine cases treated with quinine sulphate in solution grains 90 on each of two consecutive days, at least eighty-four, i.e. 94 per cent., relapsed. As two cases were observed for less than sixty days the possible maximum number of relapses within an observation period of sixty days is eighty-six, i.e. 97 per cent.

A comparison of the results obtained in this series of observations with those obtained with the same treatment in the previous series (1918) is given in the following table.

TABLE I.

Comparison of results of oral administration of quinine sulphate grains 90 on two consecutive days only in Series I and Series II.

	Series I		Series II	
	Minimum	Maximum	Minimum	Maximum
Number of cases treated	76		89	
Number of cases which relapsed* ...	29	33	84	86
Percentage of cases which relapsed ...	38 %	43 %	94 %	97 %

* As explained in Papers VII and VIII (1918), the minimum figure refers to the relapses actually observed, while the maximum is the sum of these and of such cases as left hospital before the completion of the 60 days' observation period.

The explanation of the remarkable discrepancy between these two results we propose to discuss in a future paper.

REFERENCE

STEPHENS, J. W. W., YORKE, W., BLACKLOCK, B., MACFIE, J. W. S., COOPER, C. F., and CARTER, H. F. (1918). *Ann. Trop. Med. & Parasitol.*, Vol. XI, pp. 297 and 328.

TABLE II.

Summary of results of oral administration of quinine sulphate grains 90 on each of two consecutive days.

* E.A. = East Africa. F. = France. I. = India. M. = Mesopotamia. S. = Salonika.

Number of case	*Place of infection	Interval (in months) between first admission to a hospital with malaria and present treatment	Interval (in months) between leaving infected area and present treatment	Interval (in months) between arrival in England and present treatment	Date of end of treatment	Temperature fell to normal in — days after first dose	Parasites disappeared from cutaneous blood in — days after first dose	Parasitic relapse occurred in — days after first dose	Febrile relapse (above 100° F.) occurred in — days after first dose	Observation period in cases in which did not relapse	Remarks
731	E.A.	10	4	1	31.3.18	2	1	16	14	...	
732	E.A.	7	4	1	11.4.18	1	2	17	16	...	
733	E.A.	5	4	1	12.4.18	Same day	2	22	19	...	
734	S.	7	5	4	22.3.18	1	3	15	20	...	
735	E.A.	10	2	0	29.3.18	1	2	13	...	...	Quinine orally gr. 45 on 14th day
736	E.A.	19	3	1	12.4.18	Same day	2	16	22	...	
737	S.	19	2	2	22.3.18	1	2	18	...	...	Quinine orally gr. 45 on 21st day. Crescents on 17th and 18th days
738	E.A.	6	1	0	29.3.18	1	1	15	18	...	
739	S.	7	2	2	24.3.18	1	3	14	13	...	
740	S.	7	3	3	10.4.18	3	2	13	15	...	
741	E.A.	9	3	1	12.4.18	1	2	17	...	...	Quinine orally gr. 15 on 18th day
742	M.	10	8	4	9.3.18	1	1	17	18	...	
743	M.	9	8	4	29.3.18	1	2	42	...	...	Quinine orally gr. 15 on 42nd day
744	S.	8	2	1	29.3.18	Apyrexia	1	12	13	...	
745	E.A.	4	2	0	29.3.18	1	1	13	16	...	
746	S.	6	2	1	4.4.18	Apyrexia	1	13	15	...	
747	E.A.	21	6	1	12.4.18	Apyrexia	1	26	23	...	

748	S.	9	3	1	17.1.18	1	14	16	...
749	S.	10	4	2	4.2.18	1	16	18	...
750	S.	11	4	2	25.2.18	1	12	...	Quinine orally gr. 90 on 16th day
751	S.	12	5	3	13.3.18	Apyrexia	14	17	...
752	E.A.	16	3	1	11.4.18	Same day	16	23	...
753	E.A.	24	4	1	3.4.18	Apyrexia	...	...	63
754	E.A.	13	9	3	31.3.18	Apyrexia	Same day	...	72
755	E.A.	10	4	1	12.4.18	Apyrexia	1	27	...
756	E.A.	6	5	1	4.4.18	1	18	19	...
757	E.A.	6	4	1	12.4.18	Apyrexia	1	16	...
758	S.	21	2	1	24.3.18	1	13	18	...
759	E.A.	9	3	0	29.3.18	Same day	14	17	...
760	E.A.	8	5	4	29.3.18	2	20	20	...
761	I.	...	...	...	12.4.18	Apyrexia	1	...	27
762	E.A.	9	3	1	5.4.18	1	22	...	...
763	E.A.	9	2	1	5.4.18	Same day	13	...	Quinine orally gr. 15 on 25th day
764	E.A.	12	1	0	29.3.18	Apyrexia	1	13	Quinine orally gr. 45 on 14th day
765	S.	8	3	2	4.4.18	Same day	3	...	...
766	E.A.	5	3	1	5.4.18	Same day	2	...	Quinine orally gr. 15 on 23rd day
767	E.A.	9	3	1	31.3.18	Same day	14	...	Quinine orally gr. 45 on 15th day
768	S.	18	2	1	24.3.18	Same day	15	17	...
769	E.A.	7	3	0	12.4.18	Same day	53	54	...
770	E.A.	7	1	0	31.3.18	Same day	19	20	...
771	E.A.	5	2	0	31.3.18	1	25	...	Quinine orally gr. 45 on 26th day
772	S.	23	2	0	9.4.18	Same day	15	14	...
773	S.	10	2	0	12.4.18	Apyrexia	1	15	...
774	E.A.	21	1	0	24.3.18	Apyrexia	1	17	Quinine orally gr. 45 on 19th day
775	S.	8	2	2	22.3.18	Apyrexia	1	12	...

TABLE II—continued.

Summary of results of oral administration of quinine sulphate grains 90 on each of two consecutive days.

* E.A. = East Africa. F. = France. I. = India. M. = Mesopotamia. S. = Salonica.

Number of case	*Place of infection	Interval (in months) between first admission to a hospital with malaria and present treatment	Interval (in months) between leaving infected area and present treatment	Interval (in months) between arrival in England and present treatment	Date of end of treatment	Temperature fell to normal in — days after first dose	Parasites disappeared from cutaneous blood in — days after first dose	Parasitic relapse occurred in — days after first dose	Febrile relapse (above 100° F.) occurred in — days after first dose	Observation period in cases which did not relapse	Remarks
776	S.	9	3	3	11.4.18	1	1	14	...	...	Quinine orally gr. 45 on 15th day
777	E.A.	6	3	0	31.3.18	Same day	2	13	16	...	...
778	E.A.	8	3	1	31.3.18	1	2	14	...	...	Quinine orally gr. 45 on 16th day
779	E.A.	7	3	1	9.4.18	1	2	16	16	...	...
780	E.A.	23	6	5	17.1.18	Apyrexia	Same day	15	18	...	...
781	E.A.	24	7	6	5.2.18	1	1	22	...	...	Quinine orally gr. 90 on 25th day
782	E.A.	25	8	7	2.3.18	Apyrexia	1	15	16	...	...
783	E.A.	25	8	7	19.3.18	Same day	1	20	...	...	Quinine orally gr. 45 on 24th day
784	E.A.	8	3	3	11.4.18	Same day	2	14	...	...	Quinine orally gr. 45 on 15th day
785	S.	17	...	...	16.3.18	1	3	15	15	...	...
786	S.	15	...	...	20.3.18	Same day	1	16	16	...	...
787	S.	17	...	...	26.2.18	1	2	21	22	...	...
788	S.	18	...	...	22.3.18	1	2	20	21	...	...
789	E.A.	11	...	...	20.2.18	Apyrexia	1	17	19	...	...
790	E.A.	12	...	...	12.3.18	2	2	26	29	...	104° on 5th, 102° on 6th days
791	S.	18	3	2	30.3.18	3	2	38	38	...	...
792	E.A.	10	...	...	3.4.18	1	4	14	16	...	...

794	S.	8	...	...	19.3.18	1	1	1	12	15	...
795	S.	7	...	...	20.3.18	Same day	Same day	Same day	13	15	...
796	S.	6	...	...	20.3.18	Same day	Same day	1	18	...	Quinine orally gr. 90 on 18th day
797	S.	7	...	...	7.4.18	Same day	Same day	1	14	14	...
798	S.	16	1	1	29.3.18	1	3	3	15	16	...
799	S.	21	...	...	20.3.18	1	2	2	16	16	...
800	S.	9	...	...	29.3.18	1	2	2	16	16	Blackwater on 2nd day
801	E.A.	16	6	4	2.4.18	1	2	2	38	41	...
802	S.	18	...	...	22.3.18	1	2	2	17	19	...
803	S.	9	3	2	26.3.18	Same day	3	3	22	24	...
804	M.	23	22	21	31.3.18	Same day	1	1	43	39	...
805	E.A.	7	2	1	22.3.18	2	3	3	17	20	...
806	S.	15	...	...	27.3.18	1	2	2	17	16	...
807	E.A.	12	...	...	22.3.18	3	3	3	...	...	100° on 16th day
808	S.	19	...	...	30.3.18	1	5	5	21	21	...
809	E.A.	17	...	...	20.2.18	Same day	2	2	16	...	No febrile relapse in 85 days
810	S.	10	3	2	3.4.18	Same day	2	2	14	13	...
811	S.	24	2	1	7.3.18	1	2	2	...	...	40
812	S.	20	2	1	29.3.18	1	1	1	13	13	...
813	E.A.	18	...	...	9.3.18	Same day	2	2	39	...	No febrile relapse in 73 days
814	S.	18	2	1	22.3.18	Same day	2	2	16	18	...
815	...	...	...	...	21.2.18	Same day	3	3	12	15	...
816	...	...	...	...	9.3.18	1	2	2	13	17	...
817	E.A.	11	...	...	25.2.18	Apyrexia	1	1	21	26	...
818	S	18	2	1	9.3.18	1	2	2	13	14	...
819	E.A.	20	4	1	12.4.18	1	2	2	15	16	...